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Food Preparation Knowledge of Males and Females of Various Age Groups

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FOOD PREPARATION KNOWLEDGE OF MALES AND FEMALES OF VARIOUS AGE GROUPS

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Food Preparation Knowledge of Males and Females

of Various Age Groups

(TITLE)

BY

Melanie Dawn Tracy

THESIS

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Abstract

The purpose of this study was to determine the extent of cooking knowledge among adult males and females of various ages. A convenience sample of 280 adults (71% female) of various ages completed a questionnaire that assessed knowledge of ingredient functions, substitutions, and conversions; recommended measuring techniques and equipment; recommended preparation techniques for certain foods; characteristics and composition of basic food products; and basic cooking terms. Questions assessing age, gender, cooking habits, educational level, household composition, childhood home, and perceived influences on cooking knowledge, skills, and/or interests were included in order to investigate knowledge differences among study subgroups and to describe the study sample. Frequency distributions were used to investigate differences in cooking practices among participants of different age cohorts. One-way analysis of variance was used to compare total knowledge test and subtest scores of males and females of the various age cohorts from rural and urban areas.

The mean total score for the sample group on the 40-item knowledge test was 75% correct indicating a moderate level of basic cooking knowledge. Over two-thirds (68%) of the total

sample scored 70% correct or better. Females (78% correct) scored significantly higher ($p<.001$) than males (68% correct).

Participants of this study were divided into 4 age cohorts: Group 1 (20-35 yrs), Group 2 (36-50 yrs), Group 3 (51-65 years), and Group 4 (66 yrs and older). Participants in Groups 2 (79% correct) and 3 (79% correct) scored higher ($p<.001$) on the total knowledge test than did those in Groups 1 (70% correct) and 4 (72% correct).

Participants were classified based on whether they had grown up in rural (pop<50,000) or urban (pop>50,000) counties. Participants who lived in rural areas as children (78% correct) scored higher ($p<.05$) on the total knowledge test than did their urban counterparts (73% correct).

Knowledge comparisons were also made within each age cohort. In each of the four age cohorts, females scored higher than males, but no significant differences were found between participants with rural or urban backgrounds.

Results of this study indicate that while many adults are fairly knowledgeable about basic cooking procedures, a substantial proportion are not. Females are more knowledgeable than males, and individuals who have grown up in rural areas are somewhat more knowledgeable than are those

who have grown up in urban areas. Adults 35 years of age or younger are less knowledgeable about cooking than are those who are 35-65 years of age. Older adults (66 yrs or older) also scored lower on the knowledge test, but this may be due to greater difficulties with test taking in this age group. Although additional research is needed to confirm these findings, they suggest that food preparation education is warranted for some adults.

Dedication

To my late grandmother, Mary Kathryn Goekler, who planted the seed from which this research was reaped.

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I wish to thank Dr. Carol P. Ries for her constant help and encouragement throughout my undergraduate and graduate studies and with this research. She is an inspiration to me as well as to many of her other students.

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Chapter 1

Introduction

A recent consumer survey (Armstrong, Lange, & Stem, 1991) concluded that half of the primary food shoppers in U. S. households are strongly influenced by convenience when selecting food. Among individuals from adults-only households, convenience was less often a factor as age increased. Males have been reported to spend more of the household food dollar on complex and manufactured convenience foods (Pearson, Capps, & Axelson, 1986) than females. Convenience also appears to play the greatest role in meal preparation with larger families and with families residing in nonmetropolitan areas (Capps, Tedford, & Havlieck, 1985; Armstrong, et. al., 1991).

The reasons most often given for this demand for convenience include the increase in the number of working women (Armstrong, et. al., 1991; Gussow, 1988; Kinsey, 1992; McCracken & Brandt, 1987; Pearson, et. al., 1986; Reilly, 1982; Gerber, 1989) and the increased value of leisure time (Armstrong, et. al., 1992). Although these reasons are plausible, another possibility may be that people no longer know how to cook (Gussow, 1988). Very little research is available on consumer cooking knowledge or skills. Recent

knowledge assessments (Ammann, 1991; Bielunski, 1992), however, suggest that American adults are relatively uninformed about food preparation, and that young adults (ages 25-30) and men seem the least knowledgable.

The purpose of this study, therefore, was to determine the extent of cooking knowledge among adult males and females of various ages. The specific objectives addressed in the study were as follows:

1) to determine and compare the cooking knowledge of four different age cohorts: Group 1 (20-35 yrs.), Group 2 (36-50 yrs.), Group 3 (51-65 yrs.), and Group 4 (66+ yrs.)
2) to compare cooking knowledge between all males and females and between males and females in each age cohort.
3) to compare cooking knowledge between urban and rural members of the total sample and of each age cohort.

The following hypotheses were tested:

1) Adults in Group 4 are more knowledgeable about cooking than are adults in the other three age cohorts.
2) Adults in Group 3 are more knowledgeable about cooking than are adults in Groups 1 and 2.
3) Adults in Group 2 are more knowledgeable about

cooking than are adults in Group 1.

4) Overall and within Age Groups 2, 3, and 4, females are more knowledgeable about cooking than are males.

5) Females in Group 1 are not more knowledgable about cooking than are males in Group 1.

6) Overall and within each age group (1, 2, 3, and 4) adults who grew up in rural areas are more knowledgeable about cooking than are adults who grew up in urban areas.

Results of this study will be beneficial to food and nutrition educators in the development of programs and materials and to food industry in the development of products, recipes, and other promotional and educational materials for these audiences. Since limited knowledge limits choices and has serious implications for both food industry and the health care community (Bielunski, 1992), such findings will document the need for food preparation education.

Chapter 2

Review of Literature

The purpose of this study was to determine the extent of cooking knowledge among adult males and females of various ages. This review will examine the limited research that has specifically addressed cooking knowledge and skills and the related research on the use of convenience foods.

Cooking Knowledge and Skills

Very little research has been done to assess the cooking knowledge and skills of adults in this country. Research conducted by Ries (1990) suggests that young adults (mean age of 19.8 years) have had more experience with semi- and fully-prepared food items than they have with foods prepared "from scratch." A self-report questionnaire was administered to collect information about prior food preparation experience from 192 students (84% female) enrolled in a college-level introductory foods course. Most (77%) of the students said they liked to cook, but 15% said they did not know because they had not cooked enough to know.

The New Food Literacy Survey (Ammann, 1991) was sponsored by the National Pork Producers Council and conducted by National Family Opinion, Inc., a national consumer research firm. Seven hundred thirty-five consumers responded to this survey about their cooking habits and

knowledge. Many (63%) of the respondents indicated that they felt they were excellent or very good cooks, but nearly 75% "flunked" a twenty-point knowledge test by answering fewer than 70% of the questions correctly. Thirty-eight percent of the respondents reported that they don't cook as often as they would like due to a perceived lack of time; 72% responded that they would cook more often from scratch if they had more time. The men and the young adults (age 25 to 30) had the least cooking knowledge. These respondents indicated they would cook more "from scratch" if they knew more about cooking or had better equipment.

Participants in this study (Ammann, 1991) appeared to lack knowledge of a variety of basic cooking concepts. Almost 80% did not know that cooking broccoli with the lid off would help keep it green, nearly 70% did not know how much uncooked rice would yield one cup of cooked rice, and almost half did not know that liquid should be added to flour (rather than flour to liquid) for lump-free gravy. Forty-five percent did not know how many teaspoons are in one tablespoon, 48% did not know that marbling in meat indicates fat content, 30% did not know to line cake pans with waxed paper, and only one-fourth knew that it takes 15 minutes to hard cook an egg.

Similar findings were reported from a food preparation

survey conducted by the National Live Stock and Meat Board (Bielunski, 1992). A sample of 800 adults (80% female) from age 18 to over age 65 (mean age = 45 years) was surveyed. The study, focusing on cooking knowledge of beef, investigated preparation and cooking utensils, use of specific cooking methods, and the use of seasonings, herbs, and spices. Researchers found that participants had somewhat limited cooking knives and utensils and a very limited repertoire of seasoning for preparing meats. Participants did not seem to be able to differentiate between baking or roasting with dry heat and braising with moist heat. Researchers concluded from their findings that the average American consumer today is poorly informed about food preparation and cooking.

Sixty percent of the participant in this study (Bielunski, 1992) said they enjoy cooking, but 41% said they are too busy to cook meals that take more than 30 minutes. The primary reason reported for the dislike of cooking was the cleaning up afterwards (54%).

Respondents reported that, over a 7-day period, an average of only 9.71 out of a possible 21 meals, were prepared at home; 5.91 of these meals were the evening meal. This suggests that many meals are either obtained away from the home, prepared by other family members, or skipped

entirely. Based on study data, Bielunski (1992) suggests the following description of the average American cook:

> A person with little desire or time to cook; owning a poorly stocked kitchen; with an unsophisticated cooking vocabulary; and a relative lack of knowledge of meat cuts and their appropriate cooking methods (p. 20).

A recent related study on food safety knowledge (Williamson, Gravani, & Lawless, 1992) suggested that many consumers may not have a clear understanding of basic food borne disease terms and do not understand the importance of proper cooking procedures. Younger consumers and males seemed least knowledgeable.

Use of Convenience Foods

Definitions of convenience and nonconvenience foods. In their study of convenience food usage in households with male food preparers, Pearson, et al. (1986) developed these useful definitions for convenience and nonconvenience foods. Nonconvenience foods are fresh, unprocessed foods; home-frozen, home-canned, or home-preserved food items; and ingredient foods. Examples of nonconvenience foods include fresh fluid milk; fresh meats, fish, and poultry; fresh fruits and vegetables; flour, rice, and sugar.

Convenience foods are foods that are fully or partially prepared, fresh or processed in which significant preparation time, culinary skills, or energy inputs have been transferred

from the household's kitchen to the food processor and distributor. Convenience foods can be subdivided into three categories:

1. Basic convenience foods are items in which processing is more related to a preservation method than to ease of preparation, foods with a single or limited number of ingredients, and foods with time or energy inputs but not culinary expertise built in. Examples include canned vegetables, frozen and canned fruit juices, instant coffee, shelled nuts, and sliced cheeses.
2. Complex convenience foods are those foods with a high level of time-saving and/or energy inputs and culinary expertise built in, and multi-ingredient prepared mixtures. Examples include ice cream, bread, cake mixes, frankfurters, canned soup, and frozen entrees.
3. Manufactured convenience foods are those that do not have home-prepared counterparts, such as dry breakfast cereals, saltines, and soft drinks.

With the differences between nonconvenience and convenience foods well defined (Pearson, et al, 1986), studies have been conducted on the extent to which convenience foods are used and what types of convenience

foods are used most frequently by male and female household managers.

Extent and type of convenience food use. Several studies (Capps, et al, 1985; Pearson, et al, 1986; Armstrong, et al, 1991; Reilly, 1982) have been conducted on the use of convenience foods in varying types of households. Results drawn from data on 13,136 households surveyed in the 1977-78 Nationwide Food Consumption Survey (NFCS) indictated that households in rural areas spend more of the food dollar on nonconvenience foods than households in urban areas (Capps, et al, 1985). Households with managers who are at least 35 years old spend more of the food dollar on nonconvenience foods; therefore, spending less of the food dollar on all convenience foods. Households with college-educated managers spend less of the food dollar on nonconvenience foods, but more on basic and manufactured convenience foods. These results suggest that rural households with managers at least 35 years old without a college education spent more on nonconvenience foods, thereby indicating that more foods are cooked "from scratch."

Comparisons of convenience food use also have been made between households with female and male managers (Capps, et al, 1985; Pearson, et al, 1986). Pearson, et al. (1986) used data from the household portion of the 1977-78 NFCS to study

the use of convenience and nonconvenience foods of 945 households with male food preparers and 13,076 households with female food preparers. Findings of this study indicate that in households with male food preparers, more of the food dollar is spent on complex and manufactured convenience foods and less is spent on nonconvenience foods. No significant differences were found between female-managed and male-managed households on the part of the food dollar spent on basic convenience foods.

With convenience foods and quick methods of food preparation becoming increasingly more prominent in today's society, the microwave oven has become a kitchen necessity; nearly 80% of all U.S. households own at least one microwave (Williamson, Gravani, & Lawless, 1992). A majority of consumers use their microwave for at least half of the meals they prepare at home (Williamson, et al, 1992). Two potential advantages of using a microwave instead of conventional methods are fast preparation and minimal cleanup (McGovern, 1984). Research findings show that the longer a household owns a microwave oven, the greater the dependency on the microwave (Thoms, 1988). The 1982 Good Housekeeping survey of children 4- to 9-years old indicated that young children are now using kitchen equipment with 17% having experience using the microwave for reheating leftovers,

cooking hot dogs, pizza, and soups, and popping popcorn (Tang, Hertzler, & Stewart, 1992).

During the past few decades, numerous convenience foods for use by children as well as adults have been introduced to consumers by food industry. Convenience foods have transferred much of the time and activities of food preparation from the household manager to the food processor (Capps, et al, 1985).

Determinants of convenience food use. As reported by Reilly (1982), a factor influencing the increasing use of convenience foods is the dramatic rise in the employment of married women outside of the home. Currently, 70% of women age 25-44 are in the labor force, and three-quarters of them work full time (Kinsey, 1990). This level of outside employment for women suggests that there is less time to spend on food preparation (Ortiz, MacDonald, Ackermann, & Goebel, 1981; Schutz, Diaz-Knauf, & Zeidler, 1988). Some researchers (Schutz, et al, 1988; Williamson, et al, 1992; Sills-Levy, 1989; Schafer & Schafer, 1989) suggest that there has been a shift of some food-related tasks from women to men. Sills-Levy (1989) reports that men now represent 44% of all grocery shoppers and that 85% of those men shop for the whole family.

In summary, limited research has been conducted on the

cooking knowledge and skills of adults in this country. Research conducted suggests that Americans are lacking in cooking knowledge with men and young adults having the least cooking knowledge. This suspected lack of cooking knowledge may be partly attributable to the increasing use of convenience foods used by this population as well as by other adults and children. Convenience foods and quick methods of food preparation are becoming more prominent in today's society.

Chapter 3

Methodology

Instrument Development.

A self-report questionnaire consisting of a knowledge test and several descriptive and demographic questions was developed for use in this study. Questions assessing age, gender, cooking habits, educational level, household composition, childhood home, and perceived influences on cooking knowledge, skills, and/or interests were included in order to investigate knowledge differences among study subgroups and to describe the study sample.

The knowledge test was designed to investigate what and how much various-aged males and females know about basic cooking procedures. Multiple-choice items were constructed to assess knowledge of 1) ingredient functions, substitutions and conversions, 2) recommended measuring techniques and equipment, 3) recommended preparation techniques for certain foods, 4) characteristics and composition of basic products, and 5) basic cooking terms. Questions were generated to represent knowledge of preparation of a variety of different foods. Two non-professional, experienced family cooks served as consultants for test item development.

Test questions were reviewed and refined by a panel of seven foods and nutrition and other home economics faculty.

Panelists agreed that the final 40-item knowledge test was a valid measure of basic cooking knowledge. The questionnaire was pilot-tested with thirteen males and females of various ages who were not part of the study sample; minor revisions were made for clarity. The Kuder-Richardson Formula 20 coefficient (Gronlund, 1976) calculated from study participant responses was 0.81 indicating an acceptable degree of internal consistency.

Data Collection.

The questionnaire was administered to a convenience sample of 905 subjects of various ages. Questionnaires were mailed to 474 college students living in University Court, an apartment complex owned by Eastern Illinois University, and to 344 randomly-selected faculty and staff of Eastern Illinois University. Respondents were asked to return their questionnaire either to the main office of University Court or through campus mail to the investigator.

The questionnaire was also administered by the investigator to a total of 87 male and female participants of the three sites of the congregate meal program (Peace Meal) in Coles County, Illinois. At the beginning of each session, the investigator explained the purpose of the study and gave brief directions; participants completed the questionnaire in 25 minutes or less. Unbiased assistance was provided for

those participants who had difficulty in reading or seeing the print. After all participants had returned the questionnaire, the investigator gave the correct responses to the knowledge test items and answered any related questions.

Data Analysis.

Data from each questionnaire were transferred to computer answer sheets for analyses. Total knowledge scores were computed by assigning one point for each correct response on the knowledge test and then summing the correct responses for a maximum possible score of 40. In addition, subtest scores were computed for knowledge of 1) ingredient functions, substitutions, and conversions (Subtest A, 5 items), 2) recommended measuring techniques and equipment (Subtest B, 6 items), 3) recommended preparation techniques for certain foods (Subtest C, 11 items), 4) characteristics and composition of basic products (Subtest D, 8 items), and 5) basic food preparation terms (Subtest E, 10 items).

For age comparisons, participants were classified into four age cohorts: Group 1 (20-35 yrs), Group 2 (36-50 yrs), Groups 3 (51-65 yrs.), and Group 4 (66 yrs and older). Participants were also classified based on the population of the county where they indicated they had spent most of their growing-up years. Using the 1990 United States Census Bureau data, participants who grew up in counties having fewer than

50,000 residents were considered rural and those who grew up in counties with more than 50,000 residents were considered urban. Classifications were made based on participant's childhood home rather than current place of residence based on the assumption that much of a person's basic cooking knowledge is learned during childhood.

The data were analyzed by using the Statistical Package for the Social Sciences (SPSS). Frequency distributions were examined for all variables by gender and age cohort. Pearson product-moment correlational analyses were conducted to explore relationships between age and knowledge test and subtest scores. One-way analysis of variance was used to compare total knowledge test and subtest scores of males and females of the various age cohorts and from rural and urban areas.

Chapter 4

Results and Discussion

Study Participants

Adults ranging from 20 to 95 years of age completed and returned the 60-item questionnaire. Of the 905 questionnaires administered, 313 questionnaires (35%) were returned. Response rate was 12% and 49% for college students and faculty/staff respectively. Of those questionnaires returned, 33 (11%) were unusable because of too many incomplete responses. The final sample used for analysis consisted of 280 adults; sampling for some analyses was smaller due to missing data. Distribution of participants among age groups was as follows: 33% (n=90) were 20-35 years, 31% (n=82) were 36-50 years, 25% (n=68) were 51-65 years, and 11% (n=31) were 66 years or older. Over two-thirds (n=156) indicated they had grown up in rural counties (pop.<50,000). Approximately 71% (n=198) of the participants were female. Seventy-four percent of the participants (n=207) currently lived with other adults; only 24% (n=79) of the participants lived with children under the age of 18 with the majority (n=50,60%) of the children with participants of Group 2. The majority (n=222,80%) of the sample had completed at least some college or vocational coursework with more males obtaining higher levels of education than females.

Table 1.
Factors influencing cooking knowledge, interests and/or skills of males and females of various age groups.

Influences[a]	Total Sample (n=271)[b]		AGE GROUPS Group 1 20-35 yrs (n=90)		Group 2 36-50 yrs (n=82)		Group 3 51-65 yrs (n=68)		Group 4 66+ yrs (n=31)	
	n	%	n	%	n	%	n	%	n	%
Self-motivation	192	71	72	80	62	76	46	67	16	52
Parents	160	59	68	76	55	67	30	44	11	36
Friends	81	30	39	43	24	29	15	22	5	16
Grandparents	68	25	37	41	20	24	10	15	3	10
Television	51	19	25	28	14	17	11	16	5	16
Reading	49	18	15	17	16	20	12	17	3	10
Classroom Instruction	46	17	20	21	15	18	11	16	3	10
4-H	41	15	14	14	16	19	9	13	5	16
Siblings	14	5	7	8	5	6	2	3	1	3

[a]Response to question, "Which of the following has influenced your knowledge, interests, and/or skill in cooking? Check all that apply."
[b]Data missing from nine questionnaires.

As noted in Table 1, self-motivation or need to cook (n=203,71%) and parents (n=169,59%) were the two main factors perceived by participants to have influenced their knowledge, interests, and/or skills in cooking. Other factors judged influential were friends (n=83,30%), grandparents (n=71,25%), television (n=53,19%), reading (n=50,18%), classroom instruction (n=47,17%), 4-H or other organized activities (n=42,15%), and siblings (n=15,5%).

Cooking Practices of Participants

Frequency distributions indicated differences among the age cohorts in frequency of food preparation (Table 2) and in use of fully-and semi-prepared foods and foods prepared from scratch (Table 3). Three-fourths of the adults (n=271) reported they prepared food for themselves and/or their family or friends daily. More participants from Group 1 (n=77,86%) indicated they prepared food daily than did participants in Groups 2 (n=61,74%), 3 (n=43,63%), or 4 (n=23,74%).

Approximately half (n=147,53%) of the total sample reported they use fully-prepared foods (foods that require no more than just heating or serving) some of the time and another 14% (n=38) said they use such foods most of the time. Group 1 participants (20-35 yrs) appear to use these foods most often. Three-fourths of the total sample (n=205)

Table 2.
Frequency of food preparation by males and females of various age groups.

Groups	Daily[a]		Weekly[a]		Monthly[a]		Sometimes[a]		Seldom/Never[a]	
	n	%	n	%	n	%	n	%	n	%
Total Sample (n=271)[b]	203	75	43	16	11	4	8	3	8	3
Age										
Group 1 20-35 yrs (n=90)	77	86	10	11	3	3				
Group 2 36-50 yrs (n=82)	61	74	12	15	4	5	3	4	2	2
Group 3 51-65 yrs (n=68)	43	63	17	25	3	4	1	1	4	6
Group 4 66+ yrs (n=31)	23	74	3	10	1	3	3	10	1	2

[a]Response to question, "How often do you prepare food for yourself and/or your family or friends?"
[b]Data missing from nine questionnaires.

Table 3.
Percentage of reported use of fully- and semi-prepared foods and foods from scratch by males and females of various age groups.

Food Type	Total Sample (n=271)[b]		AGE GROUPS Group 1 20-35 yrs (n=90)		Group 2 36-50 yrs (n=82)		Group 3 51-65 yrs (n=68)		Group 4 66+ yrs (n=31)	
	n	%	n	%	n	%	n	%	n	%
Fully-prepared[a]										
Most of time	14	37	19	17	6	5	16	11	13	4
Some of time	53	143	58	52	53	43	45	31	55	17
Rarely	34	91	23	21	41	33	39	27	32	10
Semi-prepared[a]										
Most of time	9	25	16	14	4	3	9	6	7	2
Some of time	66	176	74	66	70	56	51	35	63	19
Rarely	25	67	10	9	26	21	41	28	30	9
From scratch[a]										
Almost always	10	26	1	4	12	10	16	11	13	4
Most of time	26	70	17	15	33	27	32	22	19	6
Some of time	36	99	42	38	38	31	28	19	35	11
Rarely	20	53	31	28	13	11	13	9	16	5
Never	9	24	9	8	4	3	12	8	16	5

[a]Response to questions, "How often do you 1) use 'fully-prepared' foods, 2) use 'semi-prepared' foods, and 3) cook from scratch?"
[b]Data missing from nine questionnaires.

reported use of semi-prepared foods (foods made from a mix that require some addition and/or manipulation of ingredients) at least some of the time. This could be due to many factors, such as outside employment of women, thus a lack of perceived time, little interest in or knowledge of cooking, or the extra clean-up involved in cooking from scratch. Frequency of use of semi-prepared foods was also highest for the youngest participants; 90% (n=80) indicated they used them at least some of the time. Similar findings have been reported by Capps, et al (1985) who found that households with managers who were younger than 35 years old spent more of the food dollar on convenience foods.

Group 1 participants (20-35 yrs) also indicated they cook foods from scratch (preparing foods from basic ingredient foods) less often than do participants in other age groups; forty percent (n=36) responded they rarely (n=28, 31%) or never (n=8,9%) cook foods from scratch. This is consistent with research by Ries (1990) which indicated that young adults have less experience with foods prepared from scratch than with fully-and semi-prepared foods.

When asked why they did not cook more often from scratch (Table 4), 64% (n=179) of the participants responded that they had too little time. This reason decreased in popularity with increasing age (82% of Group 1, 71% of Group

Table 4.
Reasons given by males and females of various age groups for not cooking more often from scratch.

Reasons[a]	Total Sample (n=271)[b]		AGE GROUPS Group 1 20-35 yrs (n=90)		Group 2 36-50 yrs (n=82)		Group 3 51-65 yrs (n=68)		Group 4 66+ yrs (n=31)	
	n	%	n	%	n	%	n	%	n	%
Too little time	173	64	74	82	58	71	31	46	8	26
Clean-up	79	29	33	37	29	35	14	20	2	7
Little interest	54	20	10	11	22	27	18	26	4	13
Little experience	41	15	22	24	8	11	8	12	2	7
Lacking equipment	41	15	32	36	5	6	4	6		
Don't know enough	27	10	10	11	7	8	11	16		
Illness	8	3					1	1	7	23

[a]Response to question, "Why don't you cook more often 'from scratch'? Check all that apply."
[b]Data missing from nine questionnaires.

2, 46% of Group 3, and 26% of Group 4). Although no data were collected in this study on employment, possibly this perceived lack of cooking time could be due to the younger age group's increased employment outside the home, thus, decreasing available time spent cooking. Other reasons reported in this study for not cooking more often from scratch included not liking the clean up (n=79,29%), little interest in cooking (n=57,20%), not much cooking experience (n=41,15%), and/or little cooking knowledge (n=28,10%).

Even though participants' perceptions of their own cooking abilities were relatively favorable, only 12% of 274 adults (12% females, 11% males) indicated that they felt they were "excellent" cooks (Table 5). More females indicated that they viewed themselves as at least "good" cooks (n=142, 72%) while males perceived themselves to be "good" (n=27,33%) to "fair" cooks (n=27,33%). Interestingly, as age increased, perception of cooking ability decreased; no participants of Group 4 (66 yrs and older) perceived themselves to be "excellent" cooks. Also interestingly, none of the Group 1 participants (20-35 yrs) indicated they had done too little cooking to judge their own skill.

Seventy-six percent of the 211 participants (80% of 198 females, 67% of 76 males) indicated that they enjoyed cooking; a greater percentage of males (10%) than females

Table 5.
Self-classification of cooking ability by males and females of various age groups.

Groups	Excellent[a]		Good[a]		Fair[a]		Poor[a]		Don't Know[a]	
	n	%	n	%	n	%	n	%	n	%
Total Sample (n=274)[b]	33	12	167	61	55	20	16	6	5	2
Age										
Group 1 20-35 yrs (n=90)	6	7	58	64	22	24	4	4		
Group 2 36-50 yrs (n=84)	16	19	49	58	6	7	3	4	3	3
Group 3 51-65 yrs (n=69)	10	15	38	55	12	17	8	12	1	1
Group 4 66+ yrs (n=31)			22	71	6	19	1	3	2	6
Gender										
Females (n=198)	24	12	142	72	30	15	2	1	2	1
Males (n=76)	8	11	27	33	27	33	13	17	4	5

[a]Response to question, "How would you classify yourself as a cook?"
[b]Data missing from six questionnaires.

(2%) were uncertain if they enjoyed cooking or not due to little actual cooking experience (Table 6). As age increased, somewhat fewer participants reported they enjoyed cooking; 87% (n=78) of Group 1, 75% (n=62) of Group 2, 69% (n=47) of Group 3, and 66% (n=20) of Group 4 indicated that they enjoyed cooking. Since participants were not asked why they did or did not enjoy cooking, reasons for this difference are not apparent.

Knowledge of Food Preparation

Participants were asked to respond to 40 knowledge items related to basic cooking knowledge. Scores ranged from 11 to 40 (28-100%) correct with a mean score of 29.9 $\pm$ 5.9 points (75% correct) which indicates a moderate level of basic cooking knowledge. Approximately 68% (n=190) of the total sample scored 70% or higher on the forty-question knowledge test. This is inconsistent with findings reported by Ammann (1991) which indicated that nearly 75% "flunked" their twenty-point knowledge test by answering fewer than 70% of the questions correctly. This inconsistency may be due to differences in number and type of questions included on the knowledge test, and the high education level of the study participants. Ammann's test was restricted to questions pertaining to meat preparation, whereas the test used in this study was designed to more comprehensively assess basic

Table 6.
Enjoyment of cooking reported by males and females of various age groups.

Groups	Yes[a]		No[a]		Don't Know[a]	
	n	%	n	%	n	%
Total Sample (n=274)[b]	208	76	55	20	11	4
Age						
Group 1 20-35 yrs (n=90)	78	87	9	10	3	3
Group 2 36-50 yrs (n=84)	63	75	19	23	2	2
Group 3 51-65 yrs (n=69)	48	69	19	28	2	3
Group 4 66+ yrs (n=31)	20	66	7	21	4	14
Gender						
Females (n=198)	158	80	36	18	4	2
Males (n=76)	57	67	18	24	8	10

[a]Response to question, " Do you enjoy cooking?"
[b]Data missing from six questionnaires.

cooking knowledge.

The percentages of correct responses to each test item for females, males, and the total sample are presented in Table 7. Females were more likely than males to respond correctly to the majority of the questions with the exception of questions involving cooking terms (basting, scalding, and whipping) and a vegetable cookery question. Overall, almost all females and males seemed to know that cornstarch is a good substitute for flour when thickening gravy, that a whip is used to stiffly beat egg whites, and the definitions of kneading and whipping. Considerably fewer appeared to know that cocoa plus shortening is a good substitute for baking chocolate, that a half cup of uncooked macaroni will yield 1 cup cooked, that there are 3 teaspoons in a tablespoon, and that biscuit dough should be rolled at least 1/2 inch thick.

Comparisons of Knowledge by Age Cohorts

Participants of this study were divided into 4 age cohorts: Group 1 (20-35 yrs), Group 2 (36-50 yrs), Group 3 (51-65 yrs), and Group 4 (66 yrs and older). The following three of the hypotheses generated for this study focused on differences between age and knowledge:

1) Adults in Group 4 are more knowledgeable about cooking than are adults in the other 3 age cohorts.

Table 7.
Comparisons of female's and male's knowledge of food preparation: Percent correct responses to individual test items.

Knowledge Test Concepts	% Correct Response Total (n=280)	Females (n=198)	Males (n=81)
Definition of kneading	97	99	93
Tool used to beat egg whites	96	98	91
Substitute for thickening gravy	95	97	90
Definition of cubing	94	94	86
Definition of whipping	92	92	96
Sifted ingredient - flour	92	94	88
Vegetable doneness	90	90	93
Definition of basting	90	90	93
Technique for combining egg whites	88	93	72
Purpose of slitting top pie crust	88	76	86
Firmly packed when measuring	88	93	76
Leavening agents	88	88	81
Fluid ounces in one cup	86	86	85
Delays discoloration of fruit	86	89	78
Definition of sauteing	84	84	84
Recommended cookery of vegetables	84	84	83
Drained & rinsed after cooking	81	86	71
Definition of scalding	79	79	79

continued

Table 7 continued

Testing for cake doneness	79	79	58
Definition of roasting	79	79	70
Definition of cutting in	79	79	60
Definition of parboiling	78	78	79
Ingredients in pie crust	78	82	67
Basic recipe of white sauce	77	77	64
Measured in glass measuring cup	70	70	28
Purpose of creaming fat & sugar	69	76	54
Cups in a stick of butter	69	80	42
Keeping lettuce crisp	68	73	58
Temperature of water with yeast	68	72	57
Effect of overmixing pastry	68	68	51
Prevents gelatin from setting	68	73	57
Definition of dredging	63	63	41
Characteristics of quality biscuits	63	63	58
Buttermilk substitute	61	70	40
Purpose of French knife	61	63	56
Basic recipe of muffins	58	58	51
Teaspoons in a tablespoon	56	62	41
Chocolate substitute	51	60	29
Yield of uncooked macaroni	49	54	35
Thickness of rolled biscuit dough	46	43	51

2) Adults in Group 3 are more knowledgeable about cooking than are adults in Groups 1 and 2.

3) Adults in Group 2 are more knowledgeable about cooking than are adults in Group 1.

Table 8 presents the total and subtest scores on the knowledge test by age cohort. Participants in Groups 2 (36-50 yrs) and 3 (51-65 yrs) scored higher on several of the individual subtests than did those in Groups 1 (21-35 yrs) and 4 (66 yrs and older). Participants in Group 3 (51-65 yrs) scored significantly higher ($p<.05$) than those in Group 1 (20-35 years) on the subtest that dealt with ingredient functions, substitutions, and conversions while participants in Group 2 (36-50 yrs) scored significantly higher ($p<.05$) than those in Group 4 (66 yrs and older) on the subtest involving recommended measuring techniques and equipment. Participants in both Groups 2 (36-50 yrs) and 3 (51-65 yrs) scored significantly higher ($p<.05$) than those in Groups 1 (20-35 yrs) and 4 (66 yrs and older) on the subtest that dealt with recommended prerparation techniques for certain foods. Participants in Groups 2 (36-50 yrs) and 3 (51-65 yrs) also scored significantly higher ($p<.05$) than those in Group 1 (20-35 yrs) on the subtests that dealt with characteristics and composition of basic products and with basic food preparation terms.

Table 8.
Total knowledge & subtest scores[a] by various age cohorts.

Groups	Ingredients (5)[b]	Measuring (6)[b]	Recommended Techniques (11)[b]	Basic Products (8)[b]	Cooking Terms (10)[b]	Total Score (40)[b]
Total Sample (n=274)[c]	3.1±1.2 (62%)[d]	4.2±1.4 (70%)	8.5±1.8 (77%)	5.9±1.7 (74%)	8.2±1.7 (82%)	29.9±5.9 (75%)
Age						
Group 1 20-35 yrs (n=90)	2.9±1.3^{x} (58%)	4.1±1.3^{xy} (68%)	8.0±1.8^{x} (73%)	5.4±1.7^{x} (68%)	7.6±1.6^{x} (76%)	27.9±5.2^{x} (70%)
Group 2 36-50 yrs (n=84)	3.2±1.2^{xy} (64%)	4.4±1.4^{x} (73%)	8.8±1.8^{y} (80%)	6.3±1.6^{y} (79%)	8.6±1.5^{y} (86%)	31.4±5.9^{y} (79%)
Group 3 51-65 yrs (n=69)	3.4±1.1^{y} (68%)	4.2±1.4^{xy} (70%)	9.0±1.5^{y} (82%)	6.1±1.6^{y} (76%)	8.6±1.6^{y} (86%)	31.4±5.4^{y} (79%)
Group 4 66+ yrs (n=31)	3.3±1.2^{xy} (66%)	3.6±1.4^{y} (60%)	8.0±1.9^{x} (73%)	5.8±1.8^{xy} (73%)	8.1±2.4^{xy} (81%)	28.7±7.3^{x} (72%)

[a] Means ± standard deviation. Values within columns with different superscripts are significantly different, $p<.05$.
[b] Number of questions in subtests and total knowledge test.
[c] Data missing from six questionnaires.
[d] Mean score expressed as percent correct.

Overall, participants of Groups 2 (36-50 yrs) and 3 (51-65 yrs) scored significantly higher ($p<.05$) on the total knowledge test than did those in Groups 1 (20-35 yrs) and 4 (66 yrs and older) which suggests that persons between the ages of 36 and 65 are more knowledgeable about basic cooking procedures and terms, at least as assessed by this knowledge test, than are those under the age of 35 or older than age 66. One-third (33%) of the participants in each of these two middle age groups (36-65 yrs) also reported cooking from scratch most of the time, and many reported using fully-prepared foods some of the time (53% and 45%, respectively by age group), and using semi-prepared foods some of the time (70% and 51%, respectively by age group). To further explore the relationships between age and food preparation knowledge, Pearson product-moment correlational analyses were used. Significant positive correlations were found between age and total knowledge score ($r=.13$, $p<.05$); ingredient functions, substitutions, and conversions ($r=.16$, $p<.01$); characterisitics and composition of basic products ($r=.12$, $p<.05$); and basic cooking terms ($r=.15$, $p<.02$). Correlations between age and knowledge of recommended measuring techniques and equipment and recommended preparation techniques for certain foods were not significant.

Comparisons of Knowledge by Gender

Total scores and subtest scores by gender and age are presented in Table 9. Two hypotheses generated for this study focused on differences between gender and knowledge:

1) Overall and within Groups 2, 3, and 4, females are more knowledgeable about cooking than are males.

2) Females in Group 1 are not more knowledgeable about cooking than are males in Group 1.

The mean total score for females (78% correct) was significantly higher ($p<.001$) than that for males (68% correct). On subtest A (Ingredient functions, substitutions, and conversions), females in each of the four age cohorts and as a whole scored significantly higher ($p<.05$) than males. This suggests that females are more knowledgeable about basic cooking procedures than are males. Females in Group 2 (36-50 yrs) scored significantly higher ($p<.05$) than males in all subtests. Ammann (1991) also found that men were among the least knowledgeable consumers.

This difference in cooking knowledge may also effect the type of food purchased by females and males. Findings by Pearson (1985) indicated that males spent more of the food dollar on foods that take less food preparation (convenience-type foods) than do females.

Overall, females scored significantly higher ($p<.001$)

Table 9.
Total knowledge & subtest scores[a] by age & gender.

Groups	Ingredients (5)[b]	Measuring (6)[b]	Recommended Techniques (11)[b]	Basic Products (8)[b]	Cooking Terms (10)[b]	Total Score (40)[b]
Gender						
females (n=198)	3.4±1.5*	4.4±1.3*	8.8±1.6*	6.2±1.6*	8.5±1.6*	31.2±5.4*
males (n=81)[c]	2.5±1.1	3.6±1.3	7.8±2.0	5.2±1.6	7.7±1.8	26.7±5.9
Age						
Group 1 20-35 yrs						
females (n=73)	3.0±1.2*	4.2±1.3	8.2±1.7*	5.5±1.7*	7.7±1.6	28.6±5.0*
males (n=17)	2.1±1.2	3.6±1.1	7.1±1.9	4.6±1.5	7.5±1.3	24.9±5.0
Group 2 36-50 yrs						
females (n=51)	3.6±1.2*	4.9±1.0*	9.4±1.3*	7.0±1.1*	9.3±.9*	34.2±3.8*
males (n=33)	2.5±1.0	3.6±1.4	7.9±2.1	5.3±1.8	7.6±1.6	27.0±6.0
Group 3 51-65 yrs						
females (n=47)	3.7±1.0*	4.4±1.4	9.1±1.4	6.4±1.6*	8.7±1.4	32.5±5.0*
males (n=22)	2.8±1.1	3.9±1.4	8.7±1.6	5.5±1.6	8.3±1.9	29.2±5.6
Group 4 66+ yrs						
females (n=23)	3.6±.9*	3.7±1.4	8.3±1.8*	6.0±1.9	8.3±2.1	30.0±6.8*
males (n=7)	2.0±1.3	3.3±1.1	6.4±1.4	4.9±1.2	6.9±2.9	23.4±6.8

[a] Means ± standard deviation.
[b] Number of items on subtest or test
[c] Data missing from 1 questionnaire.
*Significantly higher, $p<.05$.

than males on all subtest scores. These data suggest that, overall, females are more knowledgeable about cooking than males. This difference in cooking knowledge may be attributable in part to the female's greater role in food preparation.

Comparisions of Knowledge by Living Classification

Comparisions of knowledge of persons growing up in rural vs urban settings are presented in Table 10. The final hypothesis generated for this study focused on differences between living classification, age, and knowledge:

1) Overall and within each age group (1, 2, 3, and 4), adults who grew up in rural areas are more knowledgeable about cooking than are adults who grew up in urban areas.

Participants who lived in rural areas as children scored significantly higher ($p<.03$) on the total knowledge test and on the subtests involving ingredient functions, substitutions, and conversions and characteristics and composition of basic products.

This is somewhat consistent with findings of Capps et al (1985) which indicate that households in rural areas spend less of the food dollar on convenience foods than do households in urban areas. This may suggest that these consumers cook more "from scratch"; perhaps because they are

Table 10.
Total knowledge & subtest scores[a] by age & living classification.[b]

Groups	Ingredients (5)[c]	Measuring (6)[c]	Recommended Techniques (11)[c]	Basic Products (8)[c]	Cooking Terms (10)[c]	Total Score (40)[c]
Total Sample[d]						
rural (n=156)	3.3±1.2*	4.3±1.2	8.7±1.6	6.2±1.6*	8.5±1.5	31.0±5.5*
urban (n=65)	2.9±1.2	4.2±1.4	8.4±2.0	5.6±1.7	8.1±1.7	29.1±5.7
Age						
Group 1 20-35 yrs						
rural (n=52)	2.9±1.3	4.2±1.2	8.1±1.7	5.6±1.7	7.7±1.6	28.6±5.3
urban (n=32)	2.7±1.3	4.1±1.2	7.8±1.8	5.0±1.6	7.5±1.6	27.0±4.8
Group 2 36-50 yrs						
rural (n=44)	3.5±1.3	4.6±1.2	9.1±1.4	6.7±1.3	9.0±1.1	32.8±4.7
urban (n=19)	3.1±1.0	4.3±1.8	8.8±2.2	6.6±1.4	8.7±1.4	31.6±6.0
Group 3 51-65 yrs						
rural (n=34)	3.8±1.0	4.4±1.4	9.3±1.3	6.8±1.4	8.9±1.7	33.2±4.9
urban (n=11)	3.0±1.3	4.3±1.3	9.3±1.6	5.1±1.6	8.7±1.2	30.4±4.9
Group 4 66+ yrs						
rural (n=25)	3.3±1.1	3.8±1.4	8.2±1.6	5.9±1.7	8.5±1.5	29.7±5.6
urban (n=1)	5.0	5.0	10.0	8.0	10.0	38.0

[a] Means ± standard deviation.
[b] Based on 1990 Census county population. Rural = less than 50,000 residents. Urban = greater than 50,001 residents.
[c] Number of items on subtest or test.
[d] Data missing on 59 questionnaires.
*Significantly higher, $p<.05$.

more knowledgeable about basic cooking procedures than their urban counterparts. One might also expect that persons who grow up in households where cooking from scratch is common will be more knowledgeable as a result of greater familiarity with food preparation even if they were only an observer.

For the total sample, participants who grew up in rural areas scored significantly higher ($p<.05$) on the total knowledge test than did those from urban areas although the magnitude of the difference (1.9 points) was not large. None of the differences between urban and rural participants' total or subtests scores within a specific age cohort was significant.

Chapter 5

Summary, Conclusions, and Implications

Summary

The purpose of this research was to determine the extent of cooking knowledge among males and females of various ages. The data obtained from the questionnaires were analyzed to determine the current level of basic cooking knowledge, frequency of cooking, frequency of use of fully-and semi-prepared foods and foods prepared from scratch, and to compare cooking knowledge among adults of different gender, age, and living classifications. This information will be beneficial to food and nutrition educators in the development of programs and materials and to food industry in the development of products, recipes, and other promotional and educational materials for these audiences.

Two hundred eighty consumers (71% female) of various ages completed and returned a self-administered, multiple-choice, 60-item questionnaire. Questions were generated to represent knowledge of preparation of a variety of different foods. Frequency distributions were used used to investigate differences in cooking practices among participants of different age cohorts. One-way analysis of variance was used to compare total knowledge and subtest scores of males and

females of the various age cohorts from rural and urban areas.

Participants ranged in age from 20 to 95 years, with a mean age of 45 years. The majority of the participants (56%) were between 36 and 65 years old. Over two-thirds (n=156) indicated that they grew up in rural counties (pop.<50,000). Most participants (n=207,74%) currently lived with other adults; only 28% (n=79) lived with children under the age of 18. The majority (n=222,80%) of the sample had completed at least some college or vocational coursework with more males obtaining higher levels of education than females. Self-motivation or need to cook and parent were the two main factors perceived by participants to have influenced their knowledge, interests, and/or skills in cooking.

Differences among the age cohorts in frequency of food preparation, and use of fully-and semi-prepared foods and foods prepared from scratch were found. Three-fourths of the adults (n=204) reported they prepared food for themselves and/or their family or friends daily. Participants from Group 1 appeared to use fully- and semi-prepared food most often. Approximately three-fourths (n=205) of the total sample reported using semi-prepared foods and foods prepared from scratch (n=200,72%) at least some of the time.

When asked why they did not cook more often from

scratch, the three main reasons given were that they had too little time (n=179,64%), they did not like the cleaning up afterwards (n=79,29%), and they had little interest in cooking (n=57,20%). The perceived lack of time for cooking decreased in popularity as age increased.

Even though scores were relatively good (as compared to 70% or higher indicating passing), the majority (n=203,84%) of females viewed themselves as at least "good" cooks while the majority (n=54,66%) of males perceived themselves to be "good" to "fair" cooks. As age increased, fewer participants reported enjoying cooking.

Data analyses of the 40-item knowledge test revealed that the participants had a relatively good level of basic cooking knowledge, with a mean score of 29.9 $\pm$ 5.9 points (75% correct). Approximately 68% of the total sample scored a 70% or higher on the knowledge test.

Overall, females in the middle two age groups (36-65 yrs) tended to be the most knowledgeable overall with females of all ages being more knowledgeable than males. Those participants who grew up in rural areas scored significantly higher on the total knowledge test than did those who grew up in urban areas.

Limitations

Although the results of this study suggest that many

adults are fairly knowledgeable about basic cooking procedures, the participants in this study may not accurately represent the adult population. Since the response rate was inconsistent among various age cohorts, considerably less than 100% response rate (12% for college students and 49% for faculty and staff), and many males at the congregate meal program chose not to participate, one must be concerned about the potential for non-response bias. There is a possibility that those who did return their questionnaire were both more knowledgeable and more interested in cooking than those who chose not to participate.

A second limitation to this study was the uneven distribution of rural to urban living classifications. This inequity might have contributed to the lack of statistically significant differences in knowledge between rural and urban participants within each age cohort.

A third limitation was the manner in which data were collected. Since knowledge was assessed by cognitive measures and the majority of the sample had some college coursework, those participants who were more familiar with this manner of assessment might have scored better. The older population might have benefitted from a visual or hands-on assessment rather than or as well as a written assessment.

Conclusions

Six hypotheses were generated for use in this study. Of these hypotheses, two were supported in full, two were supported in part, and two were rejected.

Hypothesis 1.

Adults in Group 4 (66 yrs. and older) are more knowledgeable about cooking than are adults in the other three age cohorts. This hypothesis was rejected.

Hypothesis 2.

Adults in Group 3 (51-65 yrs) are more knowledgeable about cooking than are adults in Groups 1 (20-35 yrs) and 2 (36-50 yrs). This hypothesis was rejected in part. Adults in Group 3 were more knowledgeable about cooking than the adults in Group 1, but not compared with those in Group 2.

Hypothesis 3.

Adults in Group 2 (36-50 yrs) are more knowledgeable about cooking than are adults in Group 1 (20-35 yrs). This hypothesis was supported.

Hypothesis 4.

Overall and within Groups 2 (36-50 yrs), 3 (51-65 yrs), and 4 (66 yrs and older), females are more knowledgeable about cooking than are males. This hypothesis was supported.

Hypothesis 5.

Females in Group 1 (20-35 yrs) are not more knowledgeable about cooking than are males in Group 1. This hypothesis was rejected.

Hypothesis 6.

Overall and within each age group (1, 2, 3, and 4), adults who grew up in rural areas are more knowledgeable about cooking than are adults who grew up in urban areas. This hypothesis was supported in part.

There were three main conclusions to this study:

1) Overall females, regardless of age or living classification, are more knowledgeable about cooking than are males.
2) Adults between the ages of 36 and 65 are more knowledgeable about cooking than those who are 35 or younger and those who are 66 or older.
3) Those adults who grew up in rural areas are somewhat more knowledgeable about cooking than those who grew up in urban areas.

Overall, the results of this study suggest that there are significant differences in cooking knowledge between males and females, among age groups, and between those participants from rural and urban areas.

Implications

The results of this study could be beneficial to food and nutrition educators in the development of programs and materials in efforts to increase food preparation knowledge of individuals by designing education sessions that would best fit their needs. The food industry developing new products, recipes, and other promotional and educational materials could benefit from these results. New products and recipes that are quick to prepare and easy to understand are desired by Americans at this point in time. Additional research with a larger sample is needed to confirm these findings. Future studies are also needed that focus on developing and evaluating basic cooking programs and materials for consumers of all ages.

References

Ammann, L. (1991). How do Americans measure up? Pork Progress.

Armstrong, J.E., Lange, E., & Stem, D. (1991). Convenience as a factor in meal preparation among health-conscious adults. Home Economics Research Journal, 19, 224-232.

Bielunski, M. (1992). Food preparation survey. Food and Nutrition News, 64, 19-20.

Capps, O., Tedford, J.R., & Havlicek, J. (1985). Household demand for convenience and nonconvenience foods. American Journal of Agricultural Economics, 67, 862-869.

Gerber, J. (1989). How the aging explosion will create new food trends. Food Technology, 43, 134-135.

Gronlund, N.E. (1976). Measurement and Evaluation in Teaching. 3rd ed. New York: Macmillan Publishing Co., Inc. pp. 111-112.

Gussow, J.D. (1988). Does cooking pay? Journal of Nutrition Education, 20, 221-226.

Kinsey J. (1992). Quest for convenience: A matter of time. Cereal Foods World, 37, 305-310.

Kinsey, J. (1983). Working wives and the marginal propensity to consume food away from home. American Journal of Agricultural Economics, 65, 10-19.

McCracken, V.A. & Brandt, J.A. (1987). Household consumption of food ways from home: Total expenditures by type of food facility. American Journal of Agricultural Economics, 69, 274-283.

McGovern, R.G. (1984). Coping with the consumer revolution. Food Engineering, 56, 102.

Ortiz, B., MacDonald, M., Ackerman, N., & Goebel, K. (1981). The effect of homemaker's employment on meal preparation time, meals at home, and meals away from home. Home Economics Research Journal, 9, 200-206.

Pearson, J.M., Capps, O., & Axelson, J. (1986). Convenience food use in households with male food preparers. Journal of the American Dietetic Association, 86, 339-344.

Reilly, M.D. (1982). Working wives and convenience consumption. Journal of Consumer Research, 8, 407-418.

Ries, C.P. (1990). Prior preparation experience of students in an introductory foods course. Journal of the American Dietetic Association, 90, A-62. Abstract.

Schafer, R.B. & Schafer, E. (1989). Relationship between gender and food roles in the family. Journal of Nutrition Education, 21, 119-126.

Schutz, H.G., Diaz-Knauf, K., & Zeidler, G. (1988). Consumer use and attitude toward luncheon/sliced meats. Food Technology, 42, 162-168.

Sills-Levy, E. (1989). U.S. food trends leading to the year 2000. Food Technology, 43, 128-132.

SPSS Reference Guide. (1990). Chicago: SPSS, Inc.

Tang, W., Hertzler, A.A., & Stewart, D. (1992). Survey of kitchen equipment usage, kitchen accidents, and kitchen safety awareness of four-year olds. Journal of Nutrition Education, 24, 316-319.

Thoms, S.J. (1988). Big `niche' market; Microwaveable foods for 45-plus. Food Engineering, 60, 48, 50.

Williamson, D.M., Gravani, R.B., Lawless, H.T. (1992). Correlating food safety knowledge with home food-preparation practices. Food Technology, 46, 94-100.

United States Bureau of the Census. (1992). 1990 Census. Population and Housing Units by Urban and Rural for Illinois. United States Department of Commerce. pp.39-40.

BASIC COOKING KNOWLEDGE SURVEY

The purpose of this research is to determine the level of basic cooking knowledge among adults of various ages. This information will be useful in the development of foods and nutrition education programs.

The questionnaire should take only about 15 minutes to complete. Please answer the questions to the best of your knowledge, without consulting anyone else, then return the completed questionnaire by Friday, March 19, 1993. The information you provide will be strictly confidential. Thank you for contributing to the success of our project.

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First, we would like to know a little about your cooking practices. Please circle the letter or check the blank of the appropriate response.

1. How often do you prepare food for yourself and/or your family or friends?
   a) at least once a day
   b) at least once a week (but less than once a day)
   c) at least once a month (but less than once a week)
   d) sometimes (but less than once a month)
   e) very seldom or never

When you do prepare food for yourself and/or your family or friends,

2. How often do you use "fully-prepared" foods (food products that require no more than just heating or serving, such as frozen pizza or canned fruit)?
   a) most of the time b) some of the time c) rarely

3. How often do you use "semi-prepared" foods (food products made from a mix that require some addition and/or manipulation of ingredients, such as a cake mix or Hamburger Helper)?
   a) most of the time b) some of the time c) rarely

4. How often do you cook from scratch (prepare products from basic ingredient foods, such as homemade soup or muffins that aren't made from a mix)?
   a) almost always (skip to question 11)
   b) most of the time
   c) some of the time
   d) rarely
   e) never

Why don't you cook more often "from scratch"? Check all that apply. Is it because...

_____ 5. it takes too much time?

_____ 6. you are not very interested in cooking?

_____ 7. you don't feel you know enough about cooking?

_____ 8. you haven't had a lot of experience cooking?

_____ 9. you don't like cleaning up afterwards?

_____ 10. you don't have the necessary equipment or facilities?

_____ 11. you have an illness/condition (like arthritis) that prevents you from cooking?

If there are any other reasons, please write them here.

_____

12. How would you classify yourself as a cook?
    a) excellent
    b) good
    c) fair
    d) poor
    e) since I never cook, I don't know

13. Do you enjoy cooking?
    a) mostly yes
    b) mostly no
    c) haven't done enough to know

The next questions address basic cooking facts and concepts. Read each question carefully and circle the letter of the ONE BEST answer. Please answer all the questions even if you are not sure.

14. If you don't have baking chocolate, what is a good substitute?
    a) chocolate candy bar
    b) cocoa plus shortening
    c) powdered chocolate drink mix
    d) semi-sweet chocolate morsels

15. How much uncooked macaroni yields one cup cooked macaroni?
    a) one-fourth cup
    b) one-third cup
    c) one-half cup
    d) one cup

16. When you have no flour to thicken gravy, which of these would be the best substitute?
    a) baking powder
    b) baking soda
    c) cornstarch
    d) cream of tartar

17. If a recipe calls for buttermilk and you don't have any, a good substitute would be...
    a) evaporated milk
    b) melted butter mixed with milk
    c) milk plus vinegar
    d) plain milk

18. Which of the following ingredients will most likely prevent gelatin from setting?
    a) canned pears
    b) canned pineapple
    c) fresh pears
    d) fresh pineapple

19. To measure accurately, which of these ingredients should be firmly packed in the measuring cup?
    a) brown sugar
    b) flour
    c) granulated sugar
    d) powdered sugar

20. How many fluid ounces are in a one cup glass measuring cup?
    a) 4 ounces
    b) 6 ounces
    c) 8 ounces
    d) 10 ounces

21. How many teaspoons are in one tablespoon?
    a) 2
    b) 3
    c) 4
    d) 6

22. One stick of regular margarine or butter is equal to...
    a) one-fourth cup.
    b) one-third cup.
    c) one-half cup.
    d) one cup.

23. Which of these should be measured in a glass measuring cup?
    a) flour
    b) granulated sugar
    c) milk
    d) shortening

24. What is a French/Chef's knife best used for?
    a) cutting baked goods, such as pies or breads
    b) deboning meats
    c) peeling vegetables and fruits
    d) slicing and dicing

25. When beating egg whites to form stiff peaks, which one of these kitchen utensils would work BEST?
    a) fork
    b) metal slotted spoon
    c) plastic spatula
    d) wire whisk

26. Which of these ingredients should be sifted before measuring?
    a) baking powder
    b) brown sugar
    c) flour
    d) all of these

27. Which of these are generally drained and rinsed with fresh water immediately after cooking?
    a) broccoli
    b) macaroni
    c) rice
    d) zucchini squash

28. Biscuit dough generally should be rolled out...
    a) as thin as possible.
    b) 1/8 inch thick.
    c) 1/4 inch thick.
    d) at least 1/2 inch thick.

29. When making a cake, what is the purpose of creaming the fat and sugar together?
    a) to incorporate air to increase the volume and improve texture
    b) to make the cake richer as a result of the cream added
    c) to dissolve the sugar in the fat to make it less sweet
    d) to decrease baking time by melting the fat

30. You can delay discoloration of light colored sliced fruits (such as apples) by...
    a) chilling in the refrigerator.
    b) dipping in lemon juice.
    c) storing at room temperature.
    d) all of the above

31. To enhance flavor, texture, and color, vegetables should be cooked...
    a) in a small amount of water with the lid on.
    b) in a small amount of water with the lid off.
    c) in a large amount of water with the lid on.
    d) in a large amount of water with the lid off.

32. When preparing a double-crust pie, what is the MAIN reason you make cuts or slits in top crust?
    a) for decoration
    b) to allow steam to escape
    c) to enable the heat to penetrate the center of the pie
    d) to prevent over browning

33. The best way to keep lettuce crisp is to...
    a) place in the freezer for a few minutes.
    b) soak in cold water for at least fifteen minutes.
    c) store in cellophane wrap as purchased.
    d) wash and store in the refrigerator in a plastic bag.

34. When combining stiffly beaten egg whites with other ingredients, what technique should be used?
    a) creaming
    b) folding
    c) mixing
    d) stirring

35. When activating dry yeast, what temperature water should be used?
    a) ice water
    b) water at room temperature
    c) water slightly warmer than body temperature
    d) boiling water

36. Which of these is NOT USUALLY an ingredient in pie crust?
    a) flour
    b) sugar
    c) shortening
    d) water or milk

37. A basic recipe for _____ consists of flour, butter or margarine, milk, and salt.
    a) custard
    b) muffins
    c) pudding
    d) white (cream) sauce

38. A basic recipe for _____ consists of flour, milk, egg, oil, sugar, and baking powder.
    a) biscuits
    b) muffins
    c) pudding
    d) white (cream) sauce

39. When testing to see if a cake is done, which of the following can be used?
    a) cake pulls away from the sides of the pan
    b) cake springs back when lightly touched on top
    c) when a toothpick inserted in center comes out clean
    d) all of the above

40. Which of the following is NOT a leavening agent?
    a) baking powder
    b) baking soda
    c) salt
    d) yeast

41. Most vegetables generally should be cooked...
    a) until they are soft and mushy.
    b) at least 10 minutes to insure food safety.
    c) until they are tender yet still a little crisp.
    d) no more than 15 minutes.

42. Overmixing or rerolling pastry will make it...
    a) crumbly.
    b) sticky.
    c) tender.
    d) tough.

43. A high quality rolled biscuit will...
    a) peel off in layers.
    b) have a high volume (1 1/2 inches).
    c) have straight sides.
    d) all of the above

44. Moistening meat or other food with a liquid or fat to prevent drying or to add flavor is known as...
    a) basting.
    b) braising.
    c) broiling.
    d) roasting.

45. Cutting foods into squares of uniform sizes is known as...
    a) chopping.
    b) cubing.
    c) mincing.
    d) paring.

46. Beating rapidly to incorporate air and increase volume is known as...
    a) creaming.
    b) mixing.
    c) stirring.
    d) whipping.

47. Cooking quickly in a small amount of fat is called...
    a) broiling.
    b) deep-fat frying.
    c) sauteing.
    d) scoring.

48. Cooking in an uncovered pan in an oven surrounded by dry heat is called...
a) pot roasting.
b) roasting.
c) simmering.
d) stewing.

49. Distributing a solid fat in dry ingredients, using a rocking, cutting motion with a pastry blender, fork, or two knives held flat sides together is called...
a) creaming.
b) cutting in.
c) kneading.
d) mixing.

50. Partially cooking a food in boiling liquid, plunging in cold water, and then draining is called...
a) boiling.
b) steaming.
c) parboiling.
d) poaching.

51. Heating milk just until steam rises and small bubbles appear at the edge of the surface is called...
a) boiling.
b) poaching.
c) scalding.
d) steaming.

52. Sprinkling or coating with flour or other fine substances is known as...
a) dredging.
b) kneading.
c) marinating.
d) sifting.

53. Working dough with your hands by folding and stretching is known as...
a) beating.
b) folding.
c) kneading.
d) stirring.

Finally, we would like to know just a little more about you.

54. What is your gender?
a) female
b) male

55. What is the highest educational level you have completed?
a) grade school
b) some high school
c) high school graduation
d) some college or vocational school
e) bachelor's degree
f) master's degree
g) beyond master's degree

56. Do any other adults currently live with you?
a) yes
b) no

57. Do you have any children, 18 years or younger, currently living with you?
a) yes
b) no

57. Where did you spend most of your growing up years?
city _____
county _____
state _____

58. Which of the following has influenced your knowledge, interests, and/or skill in cooking? Check all that apply.

_____ Self-motivation/need to cook
_____ Parent/s
_____ Grandparent/s
_____ Siblings
_____ Friends
_____ 4-H or other organized activities
_____ Reading
_____ Television
_____ Classroom instruction

If you have had any other influences, please write them here.

_____

59. What is your age? _____

To return this questionnaire, cut on the dotted line, refold and staple it so that my name is on the outside, and send it through campus mail.

Thank you for taking the time to complete this questionnaire.

_____

(CUT HERE)